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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,145	08/23/2001	Keiichi Takahashi	6340-000020	1715

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HARNES, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
BLOOMFIELD HILLS, MI 48303

EXAMINER

PROCTOR, JASON SCOTT

ART UNIT PAPER NUMBER

2123

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/938,145

Applicant(s)

TAKAHASHI ET AL.

Examiner

Jason Proctor

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

***DETAILED ACTION***

Claims 1-35 were rejected in Final Office Action dated 13 June 2005. Applicants' submitted an amendment after final rejection dated 12 September 2005, amending claims 8, 9, 16, 17, 25, 26, 34, and 35 as well as presenting arguments and a request for reconsideration. The Advisory Action dated 5 October 2005 entered these amendments and indicated that Applicants' arguments do not overcome the final rejection.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Claims 1-35 have been rejected.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to

Art Unit: 2123

the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 2, 4-6, 8, 10, 12-14, 16, 18, 19, 21-23, 25, 27, 28, 30-32, and 34 rejected under 35 U.S.C. 103(a) as being unpatentable over US PG Pub No. 2004/0085311 by Lee et al. (Lee) in view of US Patent No. 6,437,784 to Bentley et al. (Bentley).

Regarding claim 1, Lee teaches a method and system for computer aided design for designing a shape of a hollow container (paragraph 0002) comprising:

- a parametric inputting means (paragraphs 0270-0271) for inputting a parametrically defined shape condition (paragraphs 0036, 0100);
- a storing means for storing said shape condition is implicit in that the invention is embodied as a system for computer aided design (paragraph 0002);
- a solid model defining means for defining a three-dimensional out shape of said hollow container (paragraphs 0010, 0041, 0044); and
- a solid model editing means for subjecting said solid model to a secondary processing (paragraphs 0046, 0097, 0180, 0185, 0193, 0235).

Lee does not explicitly teach a "solid model definition module" for defining a three-dimensional outer shape of said hollow container as a solid model "that is at least partially filled with contents on the basis of said shape condition".

Bentley teaches a set of computer tools to generate representations of a three-dimensional piece and produce a representation of a combination of such pieces in a container (column 1, lines 50-54). Bentley teaches a “solid model definition module”, referred to as *the bowl tool* (column 5, lines 57-67), which fills the container with contents on the basis of the container’s shape condition (column 14, lines 7-35). Additionally, Bentley implicitly discloses modeling a fluid, namely milk, in the container (column 2, lines 52-55; column 15, line 63 – column 16, line 2). Bentley explicitly teaches selecting from a number of containers (column 13, lines 8-9). Bentley explicitly teaches the advantages of using the disclosed method (column 2, lines 31-43; column 1, lines 11-21), generally described as “assessing consumer reaction to a proposed product”.

It would have been obvious to a person of ordinary skill in the art at the time of Applicants’ invention to combine the content-modeling feature taught by Bentley with the method and system for computer aided design for designing a shape of a hollow container as taught by Lee in order to assess consumer reaction to a proposed product or packaging design. As Bentley teaches selecting from a number of containers, the invention of Lee allows the designer to create new containers. The combination could be achieved by using the invention of Lee to define bowls to be used by the invention of Bentley, allowing a designer to assess the consumer reaction to a proposed product within the designed container rather than only in a bowl.

In response, Applicants argue primarily that:

[In Bentley et al., a] container tool allows the modeled cereal pieces to be dropped into a three-dimensional model of a bowl according to modeled gravitational effects (Abstract). The interaction of cereal pieces with each other and the bowl are also modeled to simulate real cereal pieces falling into a bowl. [...] The bowl is not defined as a solid model that is at least partially filled with contents on the basis of a shape condition, as required by the claims. [...] Therefore, it would not have been obvious to combine the bowl

Art Unit: 2123

and cereal modeling system taught by Bentley et al. with the three-dimensional modeling system taught by Lee et al. in order to achieve a system for defining a three-dimensional outer shape of a hollow container as a solid model that is at least partially filled with contents on the basis of a shape condition.

The Examiner respectfully traverses this argument as follows.

As explained by Applicant in the above argument, Bentley discloses a three-dimensional model of a bowl, partially filled with contents (specifically cereal pieces) on the basis of a shape condition (specifically the interaction between the pieces and the *shape* of the three-dimensional model of the bowl). The Examiner respectfully disagrees with Applicants' characterization of Bentley.

Applicants' arguments have been fully considered but have been found unpersuasive.

Regarding claim 2, Lee teaches that the solid model is subjected to a secondary processing after an outer shape of said hollow container is defined as a solid model (paragraphs 0046, 0105, 235-236).

Regarding claim 4, Lee teaches that the solid model editing means subjects said solid model to a secondary processing by using a fillet operation for smoothly rounding an intersecting portion of one plane with the other plane (paragraphs 0417-0418).

Regarding claim 5, Lee teaches that the solid model editing means subjects said solid model to a secondary processing by using a deformable operation for altering a plane such that a positive load or a negative load is applied to the plane (paragraph 0193; Fig. 9, 22, 23).

Art Unit: 2123

Regarding claim 6, Lee teaches that the solid model editing means subjects said solid model to a secondary processing by using a spiral operation for generating a continuous rugged shape on an exterior surface of said hollow container (paragraphs 0046, 0180; Fig. 24).

Regarding claim 8, Lee teaches that the solid model is subjected to secondary processing under the condition that a shape of a finished portion of said hollow container is fixed (paragraph 0046, 0096). Lee teaches that geometric constraint criteria can be applied to geometric objects while applying deformation operations to other objects (paragraph 0046).

In response, Applicants argue primarily that:

Lee et al. do not teach that a portion of a surface remains fixed when another portion of the surface is deformed. Lee et al. teach that geometric constraint criteria are capable of being applied to geometric objects (paragraph [0046]). [...] However, the Examiner implies that applying geometric constraint criteria to a geometric object before a deformation operation as taught by Lee et al. and fixing a shape of a finished portion of a hollow container before a secondary processing as taught by Applicants are analogous. [...] Applicants disagree.

The Examiner respectfully traverses this argument as follows.

From Lee, paragraph 0046:

In particular, features and/or subgeometry of a geometric object  $O_0$  are capable of being constrained to lie within another geometric object,  $O_1$ , so that as  $O_1$  is deformed, the features and/or subgeometry of  $O_0$  deform correspondingly, and thereby cause  $O_0$  to deform accordingly. [...] Thus, as  $O_1$  is deformed,  $O_0$  also deforms.

Lee therefore discloses that a shape of portion of the object  $O_0$  remains fixed in relation to outer shape object  $O_1$  when that outer shape is subject to a secondary processing. The Examiner maintains that Lee anticipates the language of the claim.

Applicants' arguments have been fully considered but have been found unpersuasive.

Art Unit: 2123

Claims 10, 12-14, and 16 are directed toward a container designing method using a computer which recite limitations corresponding to the container designing system using a computer of claims 1, 4-6, and 8, respectively. As the invention of Lee teaches a method for designing a container using a computer (paragraphs 0003, 0098), the limitations of claims 10, 12-14, and 16 are rejected for reasons corresponding to the rejections of claims 1, 4-6, and 8 given above.

In response, Applicants submit arguments analogous to those presented for claims 1 and 8, which have been addressed above. Applicants' arguments have been fully considered but have been found unpersuasive.

Claims 18-19, 21-23, and 25 are directed toward a container designing program for carrying out by a computer which recite limitations corresponding to the container designing system using a computer of claims 1-2, 4-6, and 8, respectively. As the invention of Lee is a computer program for designing a container (paragraphs 0003, 0098), the limitations of claims 18-19, 21-23, and 25 are rejected for reasons corresponding to the rejections of claims 1-2, 4-6, and 8 given above.

In response, Applicants submit arguments analogous to those presented for claims 1 and 8, which have been addressed above. Applicants' arguments have been fully considered but have been found unpersuasive.

Claims 27-28, 30-32, and 34 are directed toward a computer-accessible recording medium recording a container designing program for carrying out by a computer which recite



Art Unit: 2123

limitations corresponding to the container designing system using a computer of claims 1-2, 4-6, and 8, respectively. As the invention of Lee is a computer program for designing a container (paragraphs 0003, 0098) and therefore stored on a computer-accessible medium, the limitations of claims 27-28, 30-32, and 34 are rejected for reasons corresponding to the rejections of claims 1-2, 4-6, and 8 given above.

In response, Applicants submit arguments analogous to those presented for claims 1 and 8, which have been addressed above. Applicants' arguments have been fully considered but have been found unpersuasive.

2. Claims 3, 11, 20, and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Bentley as applied to claims 1, 10, 18, and 27, and further in view of US Patent No. 6,654,654 to Subrahmanyam et al. (Subrahmanyam).

Regarding claim 3, Lee teaches that the solid model editing means subjects said solid model to secondary processing by embedding one object model into another object model, constituting a Boolean AND operation (paragraphs 0279, 0416). Lee does not specifically disclose using Boolean operators for said secondary processing.

Subrahmanyam teaches a computer-implemented solid modeling system (column 2, lines 14-28) wherein Rib and Web features are created by using a union, subtraction, or intersection operation (column 4, lines 25-51). Union, subtraction, and intersection operations are functionally equivalent to Boolean operations OR, XOR, and AND respectively. It would have

Art Unit: 2123

been obvious to a person of ordinary skill at the time of applicant's invention to include tools and methods known in the art of computer-implemented solid modeling to include tools performing Boolean operations in the invention of Lee. Such a combination would better facilitate the design of glass bottles, especially with regard to combining finely detailed portions of models developed independently as disclosed by Lee (paragraph 0416). Such a combination could be achieved by including the Boolean operation tools in the user interface of the invention of Lee (paragraph 0255), providing the same functionality as disclosed by Subrahmanyam.

Claim 11 is directed toward a container designing method using a computer which recites limitations corresponding to the container designing system using a computer of claim 3. As the invention of Lee teaches a method for designing a container using a computer (paragraphs 0003, 0098), the limitations of 11 are rejected for reasons corresponding to the rejections of claim 3 given above.

Claim 20 is directed toward a container designing program for carrying out by a computer which recites limitations corresponding to the container designing system using a computer of claim 3. As the invention of Lee is a computer program for designing a container (paragraphs 0003, 0098), the limitations of claim 20 are rejected for reasons corresponding to the rejections of claim 3 given above.

Claim 29 is directed toward a computer-accessible recording medium recording a container designing program for carrying out by a computer which recites limitations

Art Unit: 2123

corresponding to the container designing system using a computer of claim 3. As the invention of Lee is a computer program for designing a container (paragraphs 0003, 0098) and therefore stored on a computer-accessible medium, the limitations of claim 29 are rejected for reasons corresponding to the rejections of claim 3 given above.

3. Claims 7, 9, 15, 17, 24, 26, 33, and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Bentley as applied to claim 1 above, and further in view of US Patent No. 5,864,777 to Smith et al. (Smith).

Regarding claim 7, Lee teaches a capacity modulating means for performing a shape modulation upon said outer shape in order that a container capacity after a shape modulation has a capacity determined by said shape condition (paragraph 0046). While Lee teaches that geometric constructs may be constrained while the modeling system deforms other aspects of the model, it is not specifically disclosed that a shape modulation can be performed so that the final volume of the model matches a parametrically defined input.

Smith teaches a method of computer implemented modeling to predict the volume of combustion head chambers (column 1, lines 52-64). The invention receives a three dimensional model of the combustion chamber and calculates the volume (paragraph 5, lines 13-30). In the event that the calculated volume is not on target, the model is adjusted so that the calculated volume meets the predetermined target volume (column 5, line 52 – column 6, 2). Therefore, Smith teaches a shape modulation technique that produces a container with a capacity

Art Unit: 2123

determined by a previously known condition. It would have been obvious to a person of ordinary skill in the art of computer implemented modeling at the time of applicant's invention to use techniques known in the art to manage the volume of a bottle being designed, especially when the volume of a bottle is a critical design feature. The combination of the volume adjusting feature of Smith with the invention of Lee could be achieved by including a volume adjusting tool in the user interface of the invention of Lee (paragraph 0255), providing the same functional ability as taught by Smith.

In response, Applicants argue primarily that:

Smith et al. do not teach automatically adjusting the cylinder head geometry so that the finished volume is equal to the desired volume.

The Examiner respectfully traverses this rejection as follows.

Applicants' arguments do not appear to be directed to the recited claim limitations of claim 7. The Examiner finds no requirement in claim 7 for "automatically adjusting" a volume. Applicants' arguments have been fully considered but have been found unpersuasive.

Regarding claim 9, Lee teaches that the solid model is subjected to shape modulation upon said outer shape under the conditions that a shape of a finished portion of said hollow container is fixed (paragraph 0046, 0096). Lee teaches that geometric constraint criteria can be applied to geometric objects while applying deformation operations to other objects.

Claims 15 and 17 are directed toward a container designing method using a computer which recite limitations corresponding to the container designing system using a computer of claims 7 and 9, respectively. As the invention of Lee teaches a method for designing a container

Art Unit: 2123

using a computer (paragraphs 0003, 0098), the limitations of claims 15 and 17 are rejected for reasons corresponding to the rejections of claims 7 and 9 given above.

In response, Applicants submit arguments analogous to those presented for claim 7, which have been addressed above. Applicants' arguments have been fully considered but have been found unpersuasive.

Claims 24 and 26 are directed toward a container designing program for carrying out by a computer which recite limitations corresponding to the container designing system using a computer of claims 7 and 9, respectively. As the invention of Lee is a computer program for designing a container (paragraphs 0003, 0098), the limitations of claims 24 and 26 are rejected for reasons corresponding to the rejections of claims 7 and 9 given above.

In response, Applicants submit arguments analogous to those presented for claim 7, which have been addressed above. Applicants' arguments have been fully considered but have been found unpersuasive.

Claims 33 and 35 are directed toward a computer-accessible recording medium recording a container designing program for carrying out by a computer which recite limitations corresponding to the container designing system using a computer of claims 7 and 9, respectively. As the invention of Lee is a computer program for designing a container (paragraphs 0003, 0098) and therefore stored on a computer-accessible medium, the limitations of 33 and 35 are rejected for reasons corresponding to the rejections of claims 7 and 9 given above.

Art Unit: 2123

In response, Applicants submit arguments analogous to those presented for claim 7, which have been addressed above. Applicants' arguments have been fully considered but have been found unpersuasive.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Proctor whose telephone number is (571) 272-3713. The examiner can normally be reached on 8:30 am-4:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached at (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3713.

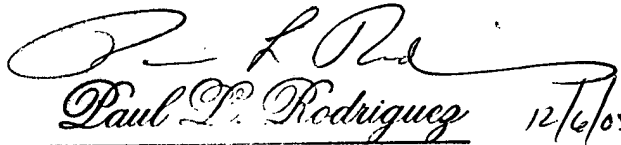
Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of

Art Unit: 2123

an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Proctor  
Examiner  
Art Unit 2123

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Paul L. Rodriguez 12/6/05  
Primary Examiner  
Art Unit 2125